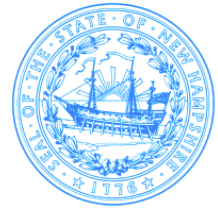




THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
LAND RESOURCES MANAGEMENT
WETLANDS BUREAU

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Permit Application Status: <http://des.nh.gov/onestop>



PERMIT BY NOTIFICATION

Erosion Prevention and Sedimentation Control Practices Guide

Why Prevent (and Control) Erosion?

Erosion is the loosening and movement of soil particles from its original location by water, wind or gravity.

Sedimentation is the process by which sediment is relocated or deposited. Erosion results in turbidity when soil particles are carried into waterbodies. Turbidity, which is the mixing of sediment with surface water, degrades water quality and sediment deposition is harmful to wetland resources. Among other things:

- Soil particles carry phosphorus, a nutrient that can cause algae blooms and water quality degradation. The suspended sediments can damage fish gills while deposited sediment can smother fish eggs and small aquatic animals (invertebrates).
- The bed of a lake or pond that has been coated with sediment may be more susceptible to the growth of some aquatic weeds, such as milfoil.
- Sediment deposition can cause wetlands to lose function and value.

Sedimentation of wetlands and surface waters is a violation! By installing erosion controls, the potential for sedimentation, siltation, or turbidity is virtually eliminated, the resource is protected and so are you.

The following provides information about what you or your contractor needs to do to ensure that appropriate steps have been taken to minimize the potential for erosion and prevent sediment from leaving the immediate work area.

Control Practices Before Construction Begins

If you have hired a contractor, make sure you have discussed your Permit by Notification with him or her. Talk about what measures are planned to control erosion.

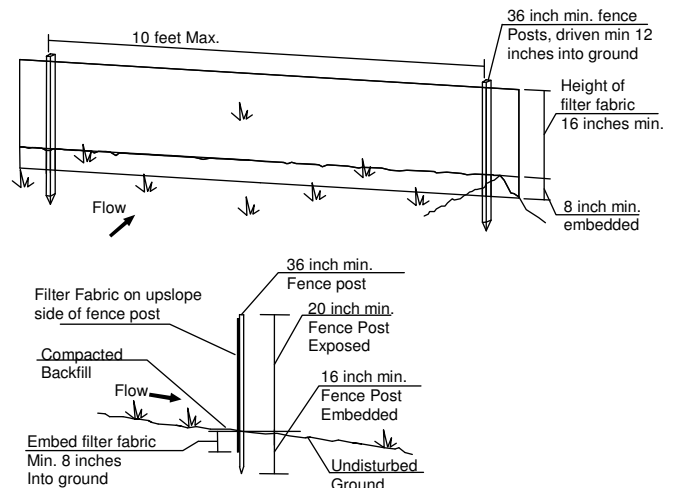
Everyone involved should understand what the protected resource is and where it is located. Most people can identify the edge of a lake or a river. The edges of wetlands often are not obvious. Your contractor may be the person pushing the dirt around, but both of you are responsible for complying with the Permit by Notification.

☐ Discuss **clearing limits** with your contractor in advance.

- **Mark clearing limits with ribbons or flagging or installation of orange construction fencing.**

- **Identify and mark particular trees and shrubs that you want protected.** Heavy machinery must be kept well away from trees to avoid compacting their roots; otherwise, they will die a few years later. Trees roots can also be smothered if excess fill is deposited around them. Wide buffer strips of undisturbed vegetation along stream and lakeshores protect water quality. Do not allow heavy machinery to operate in these areas.

☐ **If you will be working in wetlands or near surface waters, you will probably need silt fence, straw bales and grass seed or conservation mix.** Call around to find sources for your erosion control materials. Some good places to check are feed stores,



Proper installation of silt fence (above).

hardware stores, landscapers and contractor supply houses. It is not always easy to find hay or straw during late winter and early spring. It may also be expensive during those times of the year. Plan ahead. Purchase a supply early and keep it under a tarp.

Prefabricated silt fences that come with attached posts are also convenient. They usually have a colored stripe a certain distance from the edge to indicate the depth to which it needs to be dug in to the ground.

- ❑ **Before any soil is disturbed, make sure an erosion control barrier has been installed.** The barrier can be a silt fence, a row of staked straw bales, or both. In some areas, you may need a wire mesh to support the silt fence. The diagrams provided show the correct methods to install silt fence and hay bales. Both silt fence and hay bales must be trenched into the ground to be effective.

Use the diagrams provided here to guide you in the correct installation and placement. The barrier should be placed as close as possible to the activity.

If a contractor is installing the barrier, double-check it as a precaution. Erosion control barriers should be installed on the contour, meaning at the same level across the land slope, whenever possible. This prevents stormwater from flowing to the lowest point of the barrier where it builds up and overflows or destroys it.

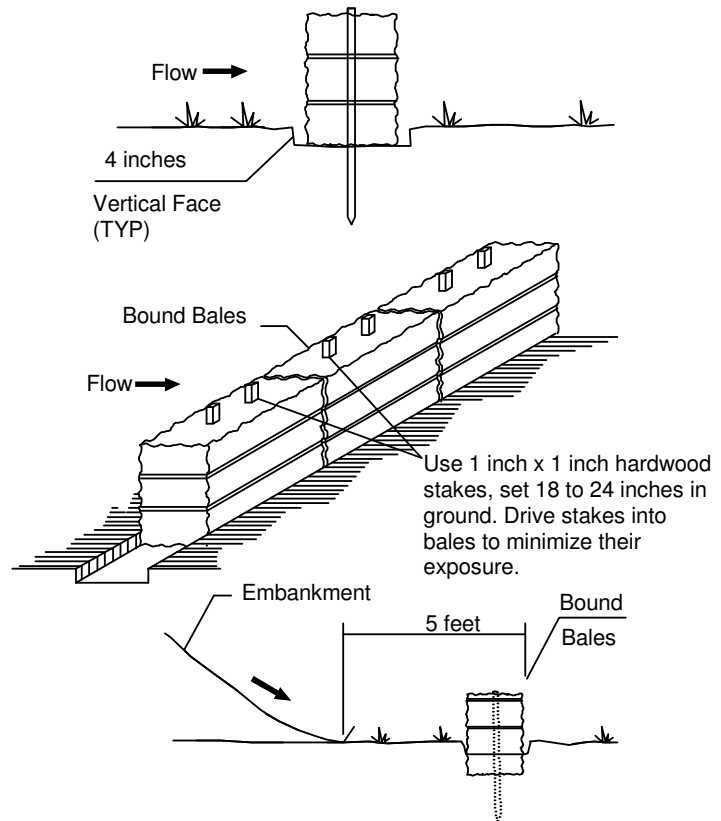
- ❑ **Consult with your construction contractor(s).**

Make sure everyone understands exactly what the job is, when it will be done, how long it will take, what erosion prevention and sediment control measures will be used and how they will be maintained.

- ❑ **Plan earth-moving activities early enough in the year so that you can revegetate the site by October 15.** Plan to mulch disturbed areas before the winter if construction is delayed past October 15. This will protect bare soil from spring runoff.

Machinery must not be allowed to cross streams. Major damage to stream banks occurs when heavy equipment is run in stream channels. If access across a stream is needed, plan for a temporary culvert or bridge that can be removed later to cross the stream.

Before doing anything else, install a filter barrier on the down slope side of the construction area. *This barrier can be a silt fence, an embedded hay bale barrier, or a combination of the two.* Silt fence is better at filtering out soil from water, but is easily pushed over by construction equipment. Hay bales do not filter dirty water as well as silt fence, but are more rugged in the field. Trench in silt fencing about 8 inches. Trench and stake hay bales with a four-inch trench and two stakes per bale.



REMEMBER - Hay bales and silt fence work only when they are installed properly and maintained!

Erosion control technology is continually evolving. Innovative technologies, such as filter socks and fiber matrices provide options to silt fence and hay bales as well as alternatives for challenging areas.

During Construction

- ❑ **Use lots of straw mulch on disturbed soil.** The purpose of mulch is to prevent rain from striking the soil directly. It is the force of raindrops striking the soil that causes a lot of erosion. Keeping the soil covered can prevent most erosion. Mulch provides the added benefit of discouraging weeds from becoming established in the disturbed soils.
- ❑ **Inspect your erosion control barriers frequently and after each rainfall.** If there is muddy water leaving the project site, your erosion controls are not working! In that situation, stop work and figure out where,

specifically, the erosion is occurring; identify what needs to be done to prevent the erosion; and what can be done to prevent more soil from getting past the barrier.

- ☐ **When earth moving**, separate topsoil **so it can be spread back on top of the site**. You will have greater success in establishing a new lawn or buffer strip area, and you won't have the added expense of buying topsoil. Ring the down slope edge of topsoil stockpiles with silt fencing or embedded hay bales.

Use mulch hay liberally on disturbed soil during the construction period to avoid creating an erosion problem. Hay mulch is the cheapest and most effective way to protect the soil. Be aware of the weather forecast and be sure to get your mulch spread if rains are expected. Don't let a week pass without mulching.

Construct suitable runoff and erosion control structures. Consult with an engineer for sites with very erodible soils, steep slopes, natural springs and seeps, and spring runoff channels and streams.

After Construction:

- ☐ When the earthmoving is completed, replant the area as quickly as possible. Don't automatically plant only grass -- consider replanting native trees shrubs, and groundcover. These species are generally better at taking up pollutants and nutrients in stormwater runoff. A mix of creeping red fescue and Kentucky bluegrass is a good choice for lawns. The same mix would not be a good choice for stabilizing a road shoulder, berm, or cut bank that you don't plan to mow.
- ☐ Be extremely careful when using fertilizers near streams, lakes and ponds. Don't apply fertilizer before a storm. The Comprehensive Shoreland Protection Act restricts the use of all fertilizers except limestone (also known as "lime") within the within 25 feet of the reference line of public waters. From 25 feet to 250 feet beyond the reference line, low phosphate, slow-release nitrogen fertilizer or limestone may be used. Visit the shoreland website for restrictions on fertilizer use: www.des.nh.gov/cspa.

- ☐ **Always cover new seeding with mulch hay or straw.** Apply mulch at a quantity of two bales per 1,000 square feet.

After applying the mulch, wet it down with water to hold it in place in flat areas. To hold the mulch down on steep slopes or in the bases of ditches, tack biodegradable netting over it and stake it with baling twine. On very steep slopes, you may need erosion control mats or "blankets" made of material such as excelsior (wood shavings) or coir (coconut fiber). REMEMBER! Your mulch is only as effective as your mulch anchoring. If mulch isn't anchored properly, the soil and seed will wash away. When using erosion control nets and mats, be sure to install them according to the manufacturer's recommendations. Otherwise, they generally won't work and your money is wasted.

- ☐ **Maintain your erosion control barrier until the area is permanently stabilized by vegetation.**

Before storms, **check your silt fencing and hay bales to ensure are in good condition and ready for action**. Check and repair them again after storms. Remove sediment that has accumulated. Replace silt fencing that no longer allows water to filter through it.

- ☐ **If you finish your project after October 15**, spread grass seed and mulch the site with a thick layer of hay or straw. The following spring, you may need to mulch again retain moisture and prevent the seed from washing away.

Resources:

Vermont Erosion Prevention and Sediment Control Field Guide (August 2006)
www.vtwaterquality.org/stormwater/docs/construction/sw_vermont_field_guide.pdf